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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,322	12/27/2001	Seiichi Nakatani	10873.860US01	9631

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EXAMINER

CHU, CHRIS C

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/033,322

Applicant(s)

NAKATANI ET AL.

Examiner

Chris C. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 - 36 is/are pending in the application.
- 4a) Of the above claim(s) 4, 6 - 9, 13 - 24 and 27 - 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 3, 5, 25 and 26 is/are rejected.
- 7) ☒ Claim(s) 10 - 12, 35 and 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of Group I in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Quick review of the claims of instant invention shows that claims 6 ~ 8, 27 ~ 29 and 30 ~ 32 do not belong in Species IV. Therefore, Examiner hereby examines claims 1 ~ 3, 5, 10 ~ 12, 25, 26, 35 and 36.

In claims 6, 27 and 28, the limitation "an electric insulating layer comprising an insulating material formed of a thermosetting resin; and a plurality of wiring patterns formed by copper-plating" belongs in Species III of instant invention.

In claims 7, 29 and 30, the limitation "an electric insulating layer formed of an organic film having thermosetting resins on both surfaces" belongs in Species III of instant invention.

In claims 8, 31 and 32, the limitation "a ceramic substrate" belongs in Species V of instant invention.

### *Drawings*

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:

In Fig. 2, elements “200, 201, 202, 204, 206 and 207” are not disclosed in instant invention.

In Fig. 3, elements “300, 301, 302 and 303” are not disclosed in instant invention.

In Fig. 4, elements “400, 402 and 403” are not disclosed in instant invention.

In Fig. 5, elements “501, 502, 503 and 504” are not disclosed in instant invention.

In Fig. 6, element “607” is not disclosed in instant invention.

In Fig. 7, elements “708 and 709” are not disclosed in instant invention.

In Fig. 8, elements “801, 803 and 804” are not disclosed in instant invention.

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

*Specification*

5. The disclosure is objected to because of the following informalities:

On page 25, line 22, "130C°" should be --130 °C--.

Appropriate correction is required.

*Claim Rejections - 35 USC § 112*

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1 ~ 3, 5, 10 ~ 12, 25, 26, 35 and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 ~ 3, the term "and/or" renders the claim indefinite because it is unclear whether the limitation following the phrase are part of the claimed invention. Since the elected Species 4 (Fig. 4) does not have passive components in an internal portion of the core layer, the claims could be read as non-elected claims.

*Claim Rejections - 35 USC § 102*

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 ~ 3, 5, 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakatani et al.

Regarding claim 1, Nakatani et al. discloses in Fig. 5 and column 11, lines 23 ~ 35 a component built-in module comprising:

- a core layer (f) formed of an electric insulating material;
- an electric insulating layer (d) formed on at least one surface of the core layer; and
- a plurality of wiring patterns (506) formed on at least one surface of the core layer;

wherein:

- the electric insulating material of the core layer is formed of a mixture comprising at least an inorganic filler and a thermosetting resin;
- at least one or more of active components (504) and/or passive components (505) are contained in an internal portion of the core layer; and
- the core layer has a plurality of wiring patterns (506) and a plurality of inner vias (501) formed of a conductive resin.

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Further, since Nakatani et al. discloses a same material as defined the claim and does not limit the electric insulating material of the core layer to be any particular or specific range of modulus of elasticity at room temperature, hence his/her disclosure encompasses all well known range of modulus of elasticity at room temperature's including "range from 0.6 GPa to 10 GPa."

Regarding claim 2, Nakatani et al. discloses in Fig. 4, column 7, lines 4 ~ 16, column 9, lines 22 ~ 26, column 11, lines 53 ~ 63 and column 18, lines 15 ~ 19 a component built-in module comprising:

- a core layer (401a) formed of an electric insulating material;
  - an electric insulating layer (401b) formed on at least one surface of the core layer;
  - and
  - a plurality of wiring patterns (402a) formed on at least one surface of the core layer;
- wherein:

- the electric insulating material of the core layer is formed of a mixture comprising at least an inorganic filler and a thermosetting resin;
- at least one or more of active components (403a) and/or passive components (403b) are contained in an internal portion of the core layer;
- the core layer has a plurality of wiring patterns and a plurality of inner vias (404) formed of a conductive resin; and
- the electric insulating material formed of the mixture comprising at least an inorganic filler and a thermosetting resin of the core layer has a modulus of elasticity at room temperature in the range from 0.6 GPa to 10 GPa; and

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- the thermosetting resin comprises a plurality of thermosetting resins having different glass transition temperatures.

Further, since Nakatani et al. discloses a same material as defined the claim and does not limit the electric insulating material of the core layer to be any particular or specific range of modulus of elasticity at room temperature, hence his/her disclosure encompasses all well known range of modulus of elasticity at room temperature's including "range from 0.6 GPa to 10 GPa."

Regarding claim 3, Nakatani et al. discloses in Fig. 4, column 7, lines 4 ~ 16, column 9, lines 22 ~ 26, column 11, lines 53 ~ 63 and column 18, lines 15 ~ 19 a component built-in module comprising:

- a core layer (401a) formed of an electric insulating material;
- an electric insulating layer (401b) formed on at least one surface of the core layer;
- and
- a plurality of wiring patterns (402a) formed on at least one surface of the core layer;

wherein:

- the electric insulating material of the core layer is formed of a mixture comprising at least an inorganic filler and a thermosetting resin;
- at least one or more of active components (403a) and/or passive components (403b) are contained in an internal portion of the core layer;
- the core layer has a plurality of wiring patterns and a plurality of inner vias formed of a conductive resin; and



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- the electric insulating material formed of the mixture comprising at least an inorganic filler and a thermosetting resin of the core layer has a modulus of elasticity at room temperature in the range from 0.6 GPa to 10 GPa; and
- the thermosetting resin comprises at least a thermosetting resin having a glass transition temperature in the range from -20°C to 60°C and a thermosetting resin having a glass transition temperature in the range from 70°C to 170°C.

Further, since Nakatani et al. discloses a same material as defined the claim and does not limit the electric insulating material of the core layer to be any particular or specific range of modulus of elasticity at room temperature, hence his/her disclosure encompasses all well known range of modulus of elasticity at room temperature's including "range from 0.6 GPa to 10 GPa."

Regarding claims 5, 25 and 26, Nakatani et al. discloses in Fig. 4, column 7, lines 17 ~ 19, column 11, lines 23 ~ 35 and column 11, lines 53 ~ 63 comprising

- a core layer (401a) formed of an electric insulating material;
- an electric insulating layer (401b) comprising an electric insulating material formed of a mixture including an inorganic filler and a thermosetting resin, which is formed on at least one surface of the core layer; and
- a plurality of wiring patterns (402a) formed of a copper foil;
- wherein the core layer (402a) has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias (404) formed of a conductive resin, and the wiring patterns are connected electrically to each other by the inner vias.

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*Allowable Subject Matter*

10. Claims 10 ~ 12, 35 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

The prior art of record does not teach or suggest, either singularly or in combination, at least a film-shaped passive component is disposed between the wiring patterns formed on at least one surface of the core layer.

*Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hayashi discloses a semiconductor device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu  
Examiner  
Art Unit 2815

c.c.  
December 1, 2002



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